DEPARTMENT OF CALIFORNIA HIGHWAY PATROL

INITIAL STATEMENT OF REASONS

TITLE 13, CALIFORNIA CODE OF REGULATIONS, DIVISION 2
AMEND CHAPTER 2, ARTICLE 22, SECTIONS 811 AND 813

WARNING LAMPS
(CHP-R-2006-18)

The California Highway Patrol (CHP) proposes to amend regulations in Title 13, California Code of Regulations (13 CCR), relating to warning lamps.

PURPOSE OF REGULATORY ACTION

Section 26103 of the California Vehicle Code (VC) authorizes the CHP to adopt regulations establishing standards and specifications for, among other items, lighting equipment. Standards for warning lamps are contained in 13 CCR, Division 2, Chapter 2, Article 22.

Requirements for warning lamps are described in 13 CCR, Sections 810 through 818. The CHP proposes to amend Sections 811 and 813 by clarifying and expanding the definition of a flash. In doing so, the revised definition of a flash will conform more closely to standards contained in Society of Automotive Engineers (SAE) Recommended Practice J845 MAY 1997.

Warning lamp requirements for emergency vehicle lighting contained in 13 CCR were developed in the mid 1960's, based on the best human factor studies available at that time. Although emergency vehicle lighting technology has advanced, no studies have been conducted recently to determine the effectiveness of these emergency vehicle lighting systems.

SAE has established recommended practices for emergency vehicle lighting. The SAE emergency vehicle lighting standards committee consists of engineers from the foremost emergency vehicle light manufacturers and lighting laboratory test facilities. The current SAE recommended practice for emergency vehicle lighting contains provisions for multi flash pattern lighting provided it meets specific requirements. Whereas traditional flashing warning lights flash "on" and "off," multi flash pattern lights flash or flicker during the "on" time period. This multi flash pattern lighting is commonly referred to as "quad flash," due to the common use of a train of four light pulses during a single flash. Although the quad flash pattern is common, the SAE recommended practice also allows for other light pulse patterns.

Basically, emergency vehicle warning lights emit a signal that is intended to visually communicate a warning message to the recipient. The recipient uses this information to determine distance, speed, type, and number of emergency vehicles, as well as the scope of the incident. According to the members of the SAE emergency vehicle lighting standards

committee, there are no comprehensive human factor studies to support, or refute, the effectiveness of a quad flash pattern with regard to communicating this message. Consequently, there is no conclusive data available to show a public safety benefit or detriment in support or opposition of a quad flash light pattern. The general consensus among emergency vehicle lighting manufacturers is multiple and distinctive flash rates provide a greater level of safety to emergency response personnel.

The emergency vehicle warning light industry has been marketing light emitting diode (LED) flashing warning lights that exhibit a quad flash pattern for the last three or more years. Emergency warning lights that exhibit a multi flash pattern do not meet current flash rate requirements contained in 13 CCR Section 813. However, quad flash pattern warning lights have been commonly installed on law enforcement vehicles, fire trucks, public and privately owned ambulances, and tow trucks.

The CHP proposes to amend the regulatory standards contained in 13 CCR, Sections 811 and 813 to clarify and expand the definition of a flash thereby achieving greater industry compliance without compromising public safety. Amending this standard will allow emergency vehicle lighting manufacturers to meet the flash requirements of SAE Recommended Practice J845 MAY 1997, as well as those requirements described in 13 CCR, Section 813.

Historically, the standards contained in 13 CCR, have provided for a readily recognizable warning signal light for the motoring public. The currently specified standards in 13 CCR, Section 813 have been adequate for many years. Therefore, there is no compelling need to require all emergency vehicle warning lights to be the quad flash pattern type. This action allows the manufacturer to select an emergency lighting system consistent with the configuration of the vehicle, and meet either the latest or earlier standards.

SECTION BY SECTION OVERVIEW

§ 811. Definitions.

This Section is amended to:

Subsection (g). Amend a grammatical error, changing the term “are discharge bulb” to “arc discharge bulb.”

Subsection (h). Add the definition of “Light Pulse” as “A single, visually continuous emission of optical energy. High frequency modulation is permitted.”

Subsection (i). Add the definition of “Flash” as “A flash is a light pulse, or a train of light pulses, where a dark interval of at least 160ms separates the light pulse or the last pulse of the train of light pulses from the next pulse or the first pulse of the next train of light pulses. To be considered a train of light pulses, each pulse in the train must begin within 100ms after the end of the preceding light pulse. Dark interval luminous intensity shall not exceed 2% of the maximum luminous intensity of a flash.”

Subsection (j). Add the definition of "On-time" as "Summation of the light pulse(s) within a flash."

§ 813. General Requirements.

Subsection (a). This is amended to expand and clarify the term "Flash Rate" by adding "Light pulses having a light output less than the required minimum shall not be included in the on-time."

STUDIES/RELATED FACTS

SAE Recommended Practice J845 MAY 1997 is a supporting document to this proposed rulemaking. As this document is copyrighted by SAE, a copy is not available for mailing by CHP. The recommended practice may be viewed, by appointment only, at the CHP, Commercial Vehicle Section (CVS). To make an appointment for viewing this document, please contact CHP, CVS at (916) 445-1865, (800) 735-2929 (TT/TDD), (800) 735-2922 (Voice), or via Facsimile at (916) 446-4579. A copy of this recommended practice is also available from the SAE. You may contact the SAE at (412) 776-4841 and request purchase of SAE Recommended Practice J845 MAY 1997.

LOCAL MANDATE

These regulations do not impose any new mandate on local agencies or school districts.

IMPACT ON BUSINESSES

The CHP has not identified any significant adverse impact on businesses since these changes simply clarify and expand regulation to allow manufacturers to use the latest industry standards for product development.

ALTERNATIVES

The CHP has not identified any alternative, including the no action alternative that would be more effective and less burdensome for the purpose for which this action is proposed. Additionally, the CHP has not identified any alternative which would be as effective and less burdensome to affected persons other that the action being proposed.

Alternatives Identified and Reviewed

1. Make no changes to the existing regulations. This alternative was rejected because it fails to provide for the potential safety benefits of the new standard and may increase costs for manufacturers attempting to comply with older standards.

ECONOMIC IMPACT

The CHP has determined these regulatory amendments will result in:

- No increased costs for lighting manufacturers. This rulemaking action will simply allow lighting manufacturers to develop products utilizing the latest industry standards.

- No significant compliance cost for persons or businesses directly affected.

- No discernible adverse impact on the quantity and distribution of goods and services to large and small businesses or the public.

- No impact on the level of employment in the state.

- No adverse impact on the competitiveness of this state to retain businesses, as the majority of other states (especially neighboring) have already adopted these or similar requirements.